April 15, 1952 G. RICCOMAGNO 2,592,823

ELECTRIC INCANDESCENT LAMP

Filed June 28, 1949 2 SHEETS—SHEET 1

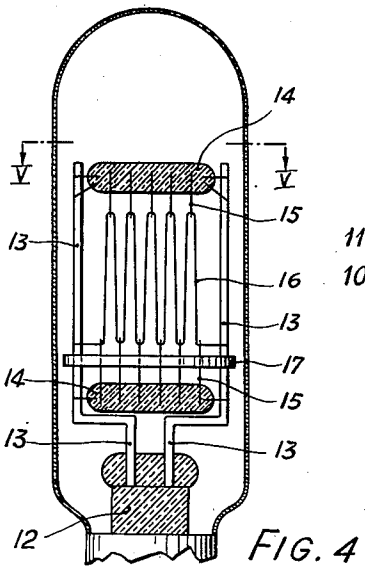

FIG. 4

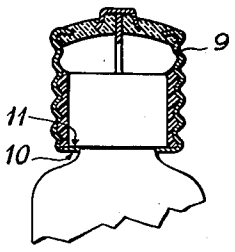

FIG. 3

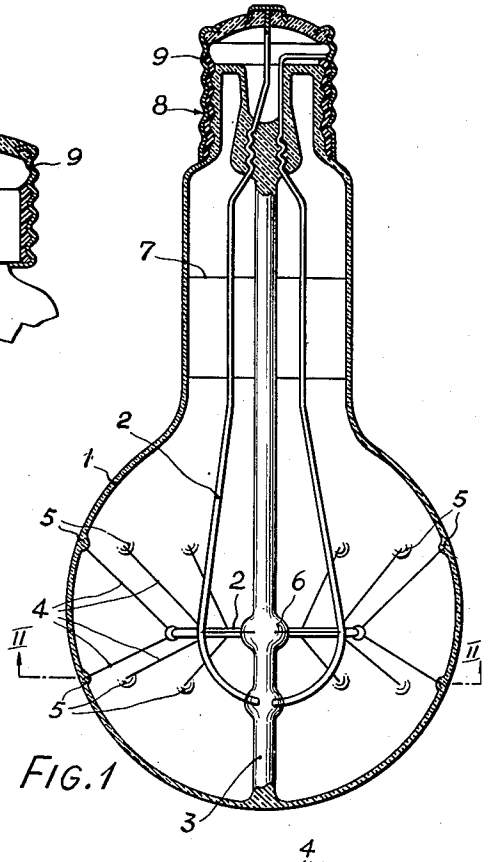

FIG. 1

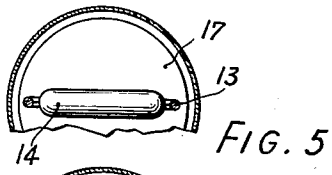

FIG. 5

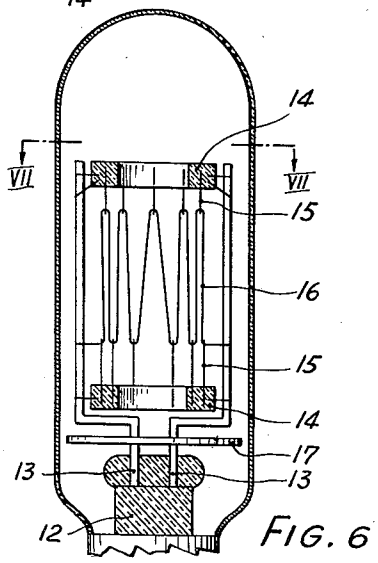

FIG. 6

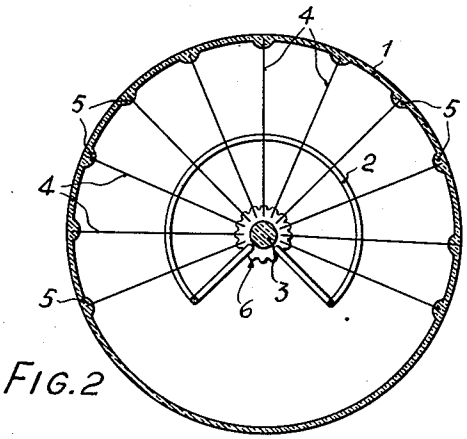

FIG. 2

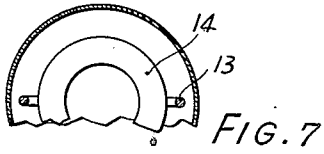

FIG. 7

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April 15, 1952 G. RICCOMAGNO 2,592,823

ELECTRIC INCANDESCENT LAMP

Filed June 28, 1949 2 SHEETS—SHEET 2

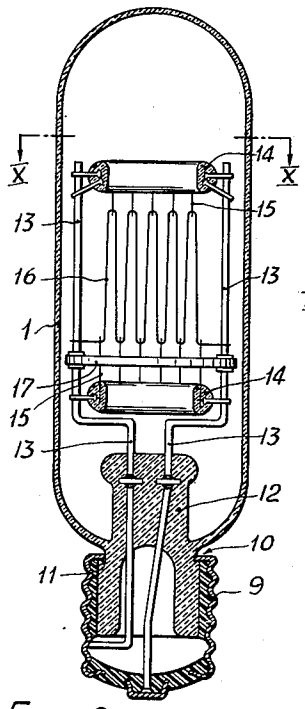

FIG. 8

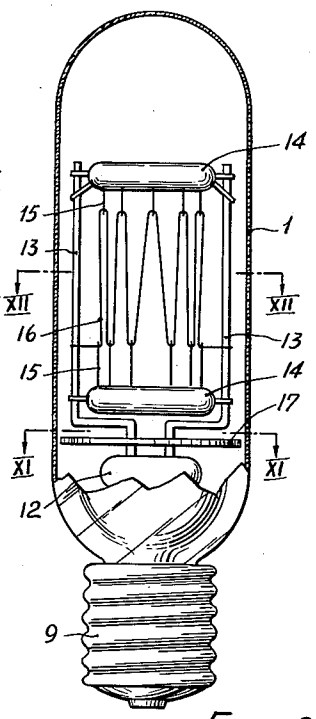

FIG. 9

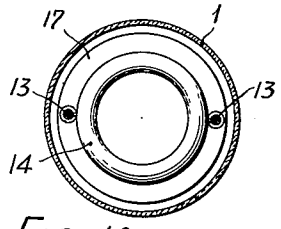

FIG. 10

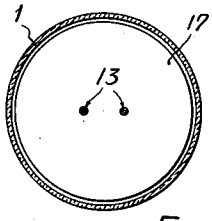

FIG. 11

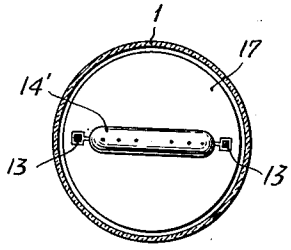

FIG. 12

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UNITED STATES PATENT OFFICE

2,592,823

ELECTRIC INCANDESCENT LAMP

Guglielmo Riccomagno, Milan, Italy

Application June 28, 1949, Serial No. 101,724
In Italy July 6, 1948

6 Claims. (Cl. 313—271)

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For floodlighting device for any kind of open spaces it has been attempted to use rotating floodlighting units revolving at remarkable speeds so that owing to the inertia of the eye there is obtained a uniformly distributed illumination all over the serviced field. This system however has been handicapped by the fact that all the existing lamps, and their incandescent filaments in particular break down when subjected to the rotational stresses, so that it has been indispensable to resort to other artifices in order to obtain at least partially satisfactory results.

It is the object of the present invention to provide an electric lamp possessing a special arrangement whereby it can safely withstand such high speed rotational stresses. Said lamp is characterised therein that the conventional incandescent filament is stretched on and anchored to additional fixed supporting points, provided at both sides as well as at the ends of said filament.

In a form of embodiment, the filament is stretched between supports constituting a rigid insulating frame, said supports having the form of a ring or of a bar, fixed on a rigid anchored frame, and a screen being provided between the filament and the base of the lamp.

It is thus possible to subject the lamp to very high rotational speeds without danger of the filament being deformed, and thus obtaining a uniformly distributed illumination all over the projected field, while the light source itself does not show any glare. There is also a considerable economy of radiating flux and of installation materials, obtaining at the same time a light whiter than that emanating from the inside source.

The invention shall now be described more in detail, reference being made to the appended drawing that represents schematically certain embodiments, and wherein:

Fig. 1 shows a longitudinal section through the lamp bulb according to a first embodiment.

Fig. 2 is a cross section of same taken on line II—II of Fig. 1.

Fig. 3 is a fragmentary sectional view illustrating the attachment end of the lamp bulb according to another embodiment.

Fig. 4 is a longitudinal sectional view of a modification showing a lamp with the incandescent filament stretched over flat frame elements.

Fig. 5 is a sectional view of the embodiment shown in Fig. 4 taken on line V—V thereof.

Fig. 6 is a sectional view, similar to Fig. 4, but illustrating a modified lamp with the filament supported on annular frame elements.

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Fig. 7 is a sectional view of the modification shown in Fig. 6 taken on line VII—VII thereof.

Fig. 8 is a longitudinal sectional view, similar to Fig. 6, with the position of the screen modified;

Fig. 9 is a longitudinal sectional view, similar to Fig. 4, with the position of the screen altered;

Fig. 10 is a sectional view taken on line X—X of Fig. 8;

Fig. 11 is a sectional view taken on line XI—XI of Fig. 9; and

Fig. 12 is a sectional view taken on line XII—XII of Fig. 9.

With reference to Figures 1 and 2, the glass bulb is indicated with 1, and inside of same there is provided a helically wound filament 2 that is made incandescent to provide the illumination. Said coiled filament is mounted in the conventional way on the central supporting stem 3 and, according to the present invention, is further kept in place by way of small pull-wires 4. These pull-wires 4, the number of which may vary in accordance to the rotational speed to which the finished lamp has to be subjected, are stretched radially between central stem 3 and bulb 1, and their end is anchored in 5 in the very glass of the bulb, which in correspondence therewith, is slightly thicker. There are also provided some supporting diaphragms 7 that surround the incandescent filament 2 and stem 3 so as to effectively brace said stem.

In order to realize a satisfactory attachment that will not become loose during the rotation of the lamp, the bulb neck is threaded, as shown in 8, and fits screw-wise on metallic cap 9, there being provided as a safety measure, between the two screw-threaded surfaces, a cement so that the glass bulb cannot get loose.

In Fig. 3 there is represented a different connection system. According to this last one, the bulb neck is not threaded, but presents an indented portion 10 in which engages an extension 11 of the metallic screw-threaded cap, so as to constitute a clamping shoulder, here too the connection being effectively insured by a cement cast between bulb and cap. This modified cap is also shown in Fig. 8.

A lamp made according to the above description may be subjected to any rotational speed, until the maximum use is made of the persistency of the image on the eye retina, what is obtained when the revolutions per second are synchronized with the maximum inertia value of the eye.

In Fig. 4 is shown the foot 12 made of insulating material on which is assembled the frame con-

stituted by the electrodes 13 on which are secured the braces or insulating elements or filament carriers 14 provided with hooks or supporting attachments 15 apt to keep stretched the incandescent filament 16, whose ends are welded to the face electrodes 13. Just beneath the incandescent filament 16 there is provided an insulating screen 17, which in the example of Fig. 4, is mounted adjacent to the filament, while in Fig. 6 it is assembled at a lower height between foot 12 and frame 13. This screen 17, which for instance is made of mica or other equivalent material, serves to prevent an excessive heating of the lamp socket. In Fig. 6 is shown the foot 12, of insulating material, on which is mounted the frame constituted by electrodes 13 and on which are secured the braces or insulating elements 14 provided with hooks or supports 15 apt to keep stretched the filament 16, welded to electrodes 13.

In the illustrations of Figs. 8 and 10, annular insulating elements 14 are used, similar to those of Figs. 6 and 7, but the circular screen 17 is mounted between the elements 14 below the filament 16, as previously shown in Fig. 4. In Fig. 9, 11, and 12, on the other hand, the insulating elements 14 are straight cross bars, similar to those of Fig. 4, but the screen 17 is mounted between the foot 12 and the first cross bar 14, as previously shown in Fig. 6.

Of course the lamp and the incandescent filament may possess forms and arrangements different than those shown, and consequently also the form and arrangement of the filament and of the supporting diaphragms thereof may vary. Similarly, in place of the screw threaded cap described above the lamps may have Edison type sockets or bayonet caps, to which too it is possible to apply the system described above without departing from the scope of the present invention, save as limited in the appended claims.

I claim:

1. In an electric incandescent lamp for high speed rotation, including a base, an envelope, and two electric terminals near said base, in combination with, two longitudinal electrodes mounted to said base and extending in the interior of said envelope and being electrically interconnected to said terminals, two oppositely disposed insulators forming filament carriers supported by said electrodes in said envelope, a plurality of hooks secured to each carrier, a saw-tooth filament suspended on said hooks between said carriers and being electrically interconnected to said eletrodes, and an insulating screen mounted on said electrodes and extending transversely between said filament and said base to shield the latter from heat rays emanating from the former.

2. In an electric incandescent lamp as claimed in claim 1, together with, said filament carriers being of annular shape, and said hooks being secured to the outer periphery thereof.

3. In an electric incandescent lamp as claimed in claim 2, in combination with, a projection on said base and having a recess, and a cap surmounting said projection and having a self-supporting extension in engagement with said recess for restraining removal of said cap.

4. In an electric incandescent lamp as claimed in claim 1, in combination with, a smooth walled projection on said base having a shoulder near said envelope, and a cap cemented to said projection wall and including an extension bent about said shoulder for anchoring thereto, and having external means for connection to a lamp socket.

5. In an electric incandescent lamp, as claimed in claim 1, together with, said screen being positioned between said base and the carrier nearest thereto.

6. In an electric incandescent lamp as claimed in claim 1, together with, said screen being positioned between said carriers in the space intermediate said filament and said base.

GUGLIELMO RICCOMAGNO.

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